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ABSTRACT

This paper describes the biology program at Munster Senior High School, Munster, Indiana. It is an individualized curriculum utilizing a multi-sensory systems approach, and is presently taught by a team of three teachers and one para-professional to 458 general biology students and 36 advanced biology students. Each student must complete 24 units; however, students work at their own optimum rate, and credit for the course is issued on the basis of units completed rather than on the traditional time basis. At the conclusion of each unit, students participate in a seminar and are tested on the material. All laboratories, audio-visual presentations, and tests are given concurrently and continuously throughout the class period. After completing eight fundamental units, students may choose any 16 of 36 alternative units to complete the course requirement. This freedom of choice enables students to select material according to their particular interests and abilities, and allows for more complete individualization of the curriculum. (JR)

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BIOLOGY CURRICULUM

MUNSTER SENIOR HIGH SCHOOL

The biology program at Munster Senior High is an individualized curriculum utilizing a multi-sensory systems approach. It presently (1972-73) accommodates 471 general biology students and 50 advanced biology students. These students are taught by a team of three teachers and one paraprofessional. The teaching team has been developing the program over a period of nine years.

With approval through the State Department of Public Instruction, the team has been engaged in an experimental program whereby credit is issued for mastery of material rather than student hours spent in the classroom. Instead of using the lock-step lecture-lab approach found in most Biology courses, and almost demanded by the Carnegie unit guidelines, the Munster Biology program employs the concept of self-pacing. This supplants a rigid time schedule necessary in a lecture-lab format with a more flexible time table based upon the student's self determined rate of subject matter comprehension.

To best implement the self-pacing mastery concept, four learning centers are utilized in the program: Reading Lab, A-V Lab, Practical Lab and Seminar. Each of the learning centers relies upon a particular medium to assist the students in learning.

The Reading Lab relies principly upon the written word--almost entirely from programmed biology texts. Reading can also take the form of a micro-reading, that is, taped readings in condensed form.

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The A-V Lab places emphasis upon sight and sound. It has replaced the traditional lecture with coordinated tape and slide presentations which reinforce topics presented in the reading lab. The student can listen to the tape when he desires and as many times as necessary for mastery.

The Practical Lab, like the A-V Lab, is used to reinforce the reading information by allowing the students to perform experiments dealing with what has been read, seen, and heard.

The Seminar area is used as another reinforcement tool by the students. Here they discuss with other classmates and a teacher, the unit concepts. It is at this time that misunderstandings and difficult ideas can be discussed and clarified.

All of these areas need coordination in order to be utilized effectively. This is achieved by use of a student guide. The student guide contains the unit objectives, vocabulary, assignments, self-tests, and other necessary information for successful mastery of subject matter.

The first page of every unit contains the objectives and vocabulary, which place emphasis on exactly what a student is to master for a particular unit. This is the information which will be covered and tested.

Following the objectives and vocabulary are unit assignments. Most of the assignments follow a suggested order of Reading, A-V, Practical Lab, and Seminar, but the student ultimately decides this sequence. Some students prefer to initiate the unit by first viewing the A-V presentation -- others prefer the lab first.

Upon completing enough of the assignments to master the objectives a student progreses to seminar where he discusses the unit's concepts with other students and a teacher. If the teacher feels that the student has mastered the material, he signs a test slip permitting the student to take a unit test. When the student successfully completes the unit test he advances to the next unit. If the student does poorly on a test, or feels he can do better on the material and wishes to retake the unit, he may. But he must first recycle through activities related to the unit concepts which gave him difficulty, and seminar prior to taking the second test. Regardless of his first score the student can raise his grade to a B on the second take of an exam. The higher score is counted. He then advances to the next unit.

In all, the student must complete 12 units to qualify for one credit in Biology--24 for two credits. He can take as little time or as much time as needed to complete 24 units. Faster students complete the 24 units in 18 weeks while slower students take as many as 54 weeks to complete the required work.

Upon completing the 24 required units the student can elect to work toward Advanced Biology credit, depth on a biological problem, or other available courses. Within a year or two, students will be able to progress into chemistry, physics, and social studies without having to wait until the following year.

The most recent undertaking is a revision of the Biology curriculum. It will utilize the same format, but alter the units. The Biology team is developing a series of eight basic units.

These will contain the basic biological concepts which are deemed as the absolute necessities. These basic units will be accompanied by thirty-six satallite units of varying degrees of difficulty. The student may choose any sixteen of these thirty-six satallite units to bring his total number of units to the required twenty-four.

It is the desire of the biology team to provide its students with many avenues to success. The student finds material in multi-sensory forms. He may pace himself, finding time no barrier. With the development of the basic unit - sattalite unit concept the individual student will find freedom to choose the material he wants to study by his ability and interest.

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Note from the Authors:

This article represents an extremely abbreviated view of our program. Please feel free to contact us for further information.